

REMARKS

The Office Action mailed October 1, 2004 has been reviewed and carefully considered. Claims 56 to 63 are pending in this application, with claim 62 being the independent claim. Reconsideration of the above-identified application, as amended, and in view of the following remarks is respectfully requested.

The specification (page 4) has been amended to correct a typographical error.

An Information Disclosure Statement is transmitted herewith.

In the Office Action mailed October 1, 2004, claims 56, 57, 58, 60 and 61 were rejected under 35 U.S.C. § 112, second paragraph, as being dependent upon a canceled claim. This rejection is in response to a clear typographical error in the Preliminary Amendment in the paragraph indicating which claims had been canceled. The typographical error clearly inadvertently canceled the sole independent claim, which was, in fact, printed in the Preliminary Amendment and indicated as a pending claim. Nevertheless, to overcome this rejection and to present an equivocal listing of the intended pending claims, the inadvertently canceled independent claim has been presented in this Amendment as “new” claim 62. The dependent claims have been appropriately amended to depend either directly or indirectly upon this independent claim. Withdrawal of this rejection is therefore now appropriate.

Claims 56-58, 60 and 61 were rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,238,784 (“Mochizuki”). Mochizuki describes an ink jet recording sheet with a support and an ink absorption layer. The ink absorption layer is made on a water repellent support, for example on a paper sheet coated with a polymeric material. The essential point is that the layer onto which the coating is made is polymer and water repellant. (col. 7, line 66 to col. 8, line 4).

Claims 56-58, 60 and 61 were rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 5,093,309 (“Hart”). Hart discloses a receiver sheet wherein the particulate matter is placed upon a polymeric resin binder layer.

Claims 56-58, 60 and 61 were rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 5,637,432 (“Okado”). Okado discloses a toner for making an image on a receiver sheet. This toner is not intended for making a continuous printing surface, whereby it is obviously not suitable for making printing paper in industrial scale.

In accordance with the present invention as recited in independent claim 62, the coating layer of the recited product is formed on a fiber layer suitable for making a paper product. Such a material differs essentially from a polymer layer or membrane as disclosed in Mochizuki and Hart. The fiber layer of applicant's claimed invention is porous, the fibers extend out of the layer, and, significantly, the fibers are capable of forming hydrogen bonds with the particulate coating material, especially with calcium carbonate.

In accordance with a preferred embodiment of the present invention as recited in dependent claims 56, 57 58 and 60, the recited elementary pigment particles contain calcium carbonate. When such particles are transferred by steam or with electric forces onto a fiber layer, the particles attach to the fibers and form hydrogen bonds with the fiber material. Such bonds will not form between a plastic polymer layer and carbonate. (see specification, page 17, lines 2-9; page 10, lines 7-13; page 14, lines 19-25).

In Mochizuki and Hart, the particles have to be attached to the polymer layer either by heating the polymer layer or by using softened binder or binder layer that attaches the particles to the surface. Such a polymeric layer cannot be used in manufacture of printing papers. It is very doubtful that calcium carbonate or any other inorganic particle could be attached on a polymer layer without a specific binder.

An important feature in forming hydrogen bonds is the presence of water. Small or larger amounts of water can be used for moisturizing the web or making a coating mixture. When the coating is performed according to the invention, the excess moisture is absorbed into the fiber web wherefrom it can be easily evaporated. If water is spread on a non-permeable polymer film (as used in Mochizuki and Hart), it is difficult or impossible for any significant attachment of the particles, thereby probably ruining the whole coating process. Consequently, a feature that is beneficial in a process according to the present invention is detrimental in the processes according to Mochizuki and Hart.

One further feature is the electric properties of these materials. Paper is on positive side in a triboelectric scale, which means it tends to obtain a positive charge. Air is slightly negative, which helps obtaining the positive charge on paper. Plastic polymers like those mentioned by Mochizuki and Hart are strongly on the negative side of the scale and obtain very easily a strong negative charge. This means that materials that attach easily to fiber materials like the paper as recited in independent claim 62, do not easily attach to polymers (as disclosed in Mochizuki and


Hart). In this case, since the calcium carbonate attaches easily on paper, it should not attach to materials used in Mochizuki or Hart without any use of a binder or without heating the polymeric layer to a state wherein mechanical binding occurs.

For all of these reasons, the invention recited in independent claim 62 is patentable over the cited references since they do not disclose or suggest coating of a fibrous substance. Since the cited references expressly state that the coating should be made on water repellant polymeric support layer, it would be impossible to end up to end up with the invention for coating a fibrous material recited in independent claim 62.

For the foregoing reasons, applicants respectfully submit that independent claim 62 is patentable. Dependent claims 56 to 61 and 63 are patentable for the same reasons that independent claim 62 is patentable. Applicants respectfully submit that this application is in condition for allowance, and such action is respectfully requested.

Respectfully submitted,

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